
# Department Of Computer Science and Engineering

**Course Title:** Operating System Lab

**Course Code:** CSE 406

**Experiment Name:** FIFO Page Replacement Algorithm

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## Problem Statement:

Input:

Page Reference = [1 3 0 3 5 6 3]

Frame Size = 3

Output:

Total Page faults = 6

## Solve Process Steps:

Inputs:

Page Reference = [1 3 0 3 5 6 3]

Frame Size = 3

| Step | Page | Frames Before | Action | Frames After | Page Fault |
|---|---|---|---|---|---|
| 1 | 1 | **[]** | Add page 1 | [1] | Yes |
| 2 | 3 | [1] | Add page 3 | [1, 3] | Yes |
| 3 | 0 | [1 3] | Add page 0 | [1, 3, 0] | Yes |

| | | | | | |
|---|---|---|---|---|---|
| 4 | 3 | [1 3 0] | Page 3 already in memory | [1, 3, 0] | Yes |
| 5 | 5 | [1 3 0] | Remove 1, add 5 | 3, 0, 5] | Yes |
| 6 | 6 | [3, 0, 5] | Remove 3, add 6 | [0, 5, 6] | Yes |
| 7 | 3 | [0, 5, 6] | Remove 0, add 3 | [5, 6, 3] | Yes |

**Output:**

Total Page faults = 6

## Source Code:

```python
def fifo(pages, frame_size):
    frame = []
    faults = 0

    for page in pages:
        if page not in frame:
            if len(frame) == frame_size:
                frame.pop(0)
            frame.append(page)
            faults += 1

    print("Total Page Faults:", faults)

# Example usage
fifo([1, 3, 0, 3, 5, 6, 3], 3)
```

```
Total Page Faults: 6
```

## Code Steps:

1. Initialize frame and faults = 0.
2. Loop through each page.
3. If page not in frame:
    - If frame full, remove the oldest (pop(0)).
    - Add the page and count a fault.
1. Print total faults.

## Discussion:

- FIFO replaces the oldest loaded page first, regardless of how often or recently it was used.
- It is simple and easy to implement using a queue-like structure.

- However, it can lead to Suboptimal performance, especially if frequently used pages are replaced.
- FIFO does not consider usage frequency or recency, which can cause unnecessary page faults.

## Conclusion:

FIFO is a simple page replacement method that works by removing the oldest page first. It’s easy to code but may lead to higher page faults since it doesn't consider usage frequency. Suitable for basic understanding, but not always efficient.